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THE BIENNIAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

Agricultural College of Utah,

For the Years 1899, 1900.

ACCOMPANIED BY

THE REPORT OF THE PRESIDENT,

AND THE

SECRETARY'S REPORT

THE RECEIPTS AND DISBURSEMENTS

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THE BIENNIAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

AGRICULTURAL COLLEGE

OF UTAH,

For the Years 1899 and 1900.

To the Governor and Legislative Assembly of Utah:

The Trustees of the Agricultural College of Utah have the honor to present their report for the biennial period ending December 31, 1900.

We are pleased to be able to report that the College is in a good condition, financially and educationally. By the exercise of rigid economy expenditures have been kept within the available means and we shall complete the present academic year without a deficit. To do this, however, we are unable to meet the pressing demand for increased facilities for some of the most important work of the institution. This is notably true of the Library, of the Experiment Station, and of the departments of Agriculture, and of Chemistry and Mineralogy. The work is progressing along the general lines indicated by the laws under which the College is organized, emphasizing particularly those features which affect the agricultural and industrial interests of the State.

The results of the more thorough organization of the different departments effected during the present academic year are already manifest in the increased efficiency of the work.

For a statement of the changes that have taken place during the last two years in the faculty and in the staff of the Experiment Station, and for a description of the condition and requirements of the College throughout the different departments, you are respectfully referred to the report of the President, which is submitted with our full approval as a part of this report.

We urge the importance of the appropriations asked for in order that the most pressing demands upon the institution may be met, and its success and growth consistent with the increasing educational and industrial requirements of the State may be assured.

We recommend that the general appropriation of $44,000 be made for meeting the expense of maintenance and for incidental equipment, instead of having special appropriations for each of the requirements of the institution. This will give the Trustees greater freedom in the use of the money as the interests of the several departments may require.

A detailed statement of the receipts and expenditures during the past two years, an inventory of all College property, and a list of College officials with their respective salaries, will be found in the appended report of the Secretary.

Respectfully submitted,

BOARD OF TRUSTEES OF THE
AGRICULTURAL COLLEGE OF UTAH,

By W. S. McCornick, President.

January 8, 1901.

PRESIDENT'S REPORT

AGRICULTURAL COLLEGE OF UTAH,

FOR THE

Years 1899 and 1900.

To the Board of Trustees, Agricultural College of Utah:

Ladies and Gentlemen:—In accordance with a provision of the laws of Utah, the President of the College respectfully presents his report for the biennial period ending December 31, 1900.

During the time from January 1, 1899, to June 30, 1900, the work of the College was carried on under the administration of President J. M. Tanner, in accordance with the general plan outlined in the catalogues of the College and discussed in the report to the Legislature for the preceding biennium. The work of the period from July 1 to December 31, 1900, has been under the present administration.

For a description of the equipment and work of the different departments, you are respectfully referred to the official College publications which are submitted as a part of this report.

During the two years from January 1, 1899, to December 31, 1900, a number of changes have taken place in the instructional force, and in the staff of the Experiment Station. On April 20, 1899, G. W. Thatcher, Jr., resigned his position as Instructor in Music and was succeeded by Alexander Lewis. On June 13, 1899, B. P. Fleming was employed as Assistant in the department of Civil Engineering; William Peterson, B. S., a graduate of the College, was engaged as Instructor in Mathematics and Assistant in the department of Horticulture; Anna Beers, B. S., also a graduate of the College, was employed as Assistant in Domestic Science; and Lydia Holmgren was employed as Assistant in Stenography.

On September 24, 1899, D. D. Hugh, of the Colorado Normal School at Greeley, Colorado, was employed as Instructor in English; and the Professor of Chemistry, the Professor of English Language and Literature, and the Registrar, were authorized to employ student assistance for laboratory, critic, and clerical work, respectively.

J. E. Wilson resigned his position as Secretary of the College on February 24, 1900, and P. W. Maughan was appointed his successor. The resignation of J. M. Tanner, who had been President of the College since 1896, was accepted on February 24, 1900, to take effect at the end of the academic year, June 30, 1900.

On May 1, 1900, the resignation of Luther Foster as Director of the Experiment Station and Professor of Agriculture, was accepted to take effect September 1, 1900; and D. D. Hugh resigned his position as Instructor in English to return to the Colorado Normal School.

Anna Beers resigned on June 11, 1900, as Assistant in Domestic Science and was succeeded by Lydia Holmgren.

Samuel B. Mitton was employed on June 11, 1900, as Instructor in Vocal Music to succeed Alexander Lewis who had resigned.

On June 11, 1900, William J. Kerr, who had been President of the Brigham Young College, at Logan, since 1894, was elected President of the College and Professor of Mathematics and Astronomy; and John A. Widtsoe, who had been Professor of Chemistry and Mineralogy, and Station Chemist, in the College since 1894, but who had been on leave of absence for two years studying in German universities, was elected Director of the Experiment Station and Professor of Chemistry and Mineralogy.

George Thomas resigned his position as Professor of History on July 2, 1900, to continue his educational work in Harvard University.

On July 2, 1900, Ephraim G. Gowans, Professor of Physiology and Chemistry in the Brigham Young College, was elected Professor of Animal Biology; John F. Engle, Instructor in the Ogden High School, was elected Professor of History and Civics; Elvin J. Norton was employed as the President's Private Secretary; F. B. Linfield, Professor of Dairy Husbandry, was granted leave of absence for three months to visit some of the leading agricultural colleges, experiment stations, and dairy and stock farms of the United States and Canada; John Stewart, Assistant Chemist in the Experiment Station, was granted leave of absence for two months.

In August, 1900, H. W. Hill, a graduate of the University of California, was engaged as Instructor in English.

Sarah E. Bowen resigned her position as Instructor in Domestic Arts on September 6, 1900, and Rhoda B. Cook was employed as her successor.

On September 6, 1900, Rena Baker was employed as Instructor in English; and E. P. Pulley was employed as Assistant in Mechanical Drawing.

In October, 1900, Louise Richards, of Salt Lake City, was engaged as Instructor in Drawing; Robert Stewart was engaged as Instructor in Military Science and Tactics; and Benjamin K. Jones, Assistant Chemist in the Experiment Station of the Agricultural College of Massachusetts, was employed as Assistant Chemist in the Experiment Station.

On account of poor health, John Stewart resigned his position in November, 1900, as Assistant Chemist in the Experiment Station.

ATTENDANCE.

According to the report of the Registrar, four hundred and seventy-nine students were registered in all the courses of the College during the year 1898-1899, as follows: Post graduates, 3; seniors, 10; juniors, 8; sophomores, 26; freshmen, 59; specials, 34; sub-freshmen, 207; manual training 114—21 in domestic arts and 93 in mechanic arts; winter course, 18. The ages of the students range from 15 to 41, there being two students 41 years old. There were 282 students between the ages of 15 and 21 years; 123 students between the ages of 21 and 25 years; and 72 students between the ages of 25 and 41 years. The average age was 22 1-6 years. The record shows that there were 317 students from Utah, representing 23 different counties, as follows: Beaver, 1; Box Elder, 42; Cache, 156, including 90 from Logan; Carbon, 3; Davis, 10; Emery, 1; Garfield, 1; Iron, 1; Juab, 8; Millard, 7; Morgan, 9; Piute, 1; Rich, 1; Salt Lake, 20; Sanpete, 19; Sevier, 2; Summit, 2; Tooele, 5; Uintah, 1; Utah, 10; Wasatch, 1; Wayne, 5; Weber, 11. There were 162 students from other states, as follows: Arizona, 3; Idaho, 143; Kansas, 1; Montana, 2; Nebraska, 1; New Hampshire, 1; Oregon, 2; Wyoming, 9.

During the academic year 1899-1900, there were four hundred and eighty-eight students, registered as follows: Post graduates, 2; seniors, 8; juniors, 8; sophomores, 13; freshmen, 59; specials, 20; sub-freshmen, 249; manual training, 115—81 in mechanic arts and 34 in domestic arts; winter course, 17. The ages of the students range from 15 to 38. There were 348 students between the ages of 15 and 21 years; 86, between 21 and 25; 41, between 25 and 30; and 16 between 30 and 38. The average age was 21 7-12 years. The attendance from Utah was 334, representing 22 counties, as follows: Beaver, 3; Box Elder, 44; Cache, 155, including 88 from Logan; Carbon, 3; Davis, 12; Garfield, 1; Iron, 1; Juab, 5; Millard, 8; Morgan, 9; Piute, 2; Rich, 4; Salt Lake, 10; Sanpete, 10; Sevier, 2; Summit, 15; Tooele, 5; Uintah, 4; Utah, 10; Wasatch, 3; Wayne, 3; Weber, 25. From other states there were 154 students, as follows: Arizona, 2; Idaho, 124; Kansas, 1; Montana, 3; Nevada, 4; Oregon, 3; Wyoming, 17.

The number of students registered during the first term of the present year, up to December 15, was three hundred and eleven. The ages range from 15 to 35, the average age being 19 7-12 years. Many of the students of the College enter late in the year, in December and January, for the purpose of taking special work in mechanic arts, domestic arts, the different subjects of agriculture, and in other subjects of the winter courses, arranged for the accommodation of those who cannot attend throughout the year.

IMPROVEMENTS.

During 1899 a conservatory, 90 by 25 feet, was built at a cost of about $2,850, including $200 expended for plants, pots and other equipment. This building is of the most modern type, containing three compartments of equal size, one for semi-tropical plants, such as ferns, palms, bananas, etc., one for roses, and one for carnations and other plants. The completion of this building adds greatly to the facilities for the work in horticulture and botany, and furnishes plants for lawn decoration.

Although the soil of the campus is of such a gravelly nature, with a cement hardpan near the surface, that it is difficult to keep vegetation growing, Professor Close, in charge of the campus, reports that the efforts of the past two years have been reasonably successful. About two acres of new lawn has been made, a number of new walks completed, the College drives generally improved, and a new drive made along the bluff on the south boundary of the campus. Two iron gates, made by the Mechanic Arts Department, have been put at the west entrances. A number of conifers and deciduous trees have been grouped effectively in various parts of the campus. Fourteen beds have been laid out and planted with ornamental shrubs, and eight beds are devoted to flowering plants. Climbing plants of several species have been planted around the College buildings. In order to conduct irrigating water to different parts of the campus, it has been necessary to lay 550 feet of iron pipe and to build 400 feet of fluming. The athletic field has been increased by the addition of one-half acre of ground.

The machinery purchased with the two thousand dollars appropriated for that purpose by the last Legislature has added very much to the efficiency of the work in mechanic arts. An electro dynamo was purchased for the barn in 1899, and is used to furnish power for threshing, and for shredding corn and grinding different kinds of grain.

With the one thousand dollars appropriated for the Library, as many books and periodicals as possible were procured for the different departments. Consistent with the resources of the institution, additional books and small pieces of apparatus have been purchased from time to time to meet the demands for increased facilities.

At the beginning of the present academic year, new classes were organized in elementary subjects, and it was necessary to equip three additional class rooms, one for the work in drawing, and two for classes in English. A faculty room was also furnished for use in connection with the administrative work of the College.

FACULTY.

On July 2, 1900, the Board of Trustees established professorships in Agriculture; Dairy and Animal Husbandry; Animal Biology; Botany, Horticulture, and Entomology; Chemistry and Mineralogy; Commercial Economics and Bookkeeping; English Language and Literature; Civil Engineering; Mechanical Engineering; Domestic Arts; History and Civics; Mathematics and Astronomy; Military Science and Tactics; and Physics. Previous to this time professors and other officers of the College had been elected as the work of the institution required, but there had been no official action establishing professorships and defining the relationship between the professors and the instructors and assistants in their respective departments. While those who had been elected professors were in charge of the advanced work of the college courses and were generally recognized as the heads of departments, in many cases they exercised no supervisory control over the work of their respective departments in the more elementary subjects of the Sub-Freshmen and Preparatory courses.

By the establishment of professorships a more thorough organization was effected in all the different departments throughout the institution. The professors were thereby placed in charge of, and are held responsible for, all the work of their respective departments, whether in the advanced or more elementary subjects. As a result of this plan there is greater uniformity in the work of the different departments, and a more perfect gradation from the preparatory through the sub-freshman to the different college courses.

A number of additional instructors have also been employed during the present academic year, as indicated above. This was necessary in order that the large elementary classes might be divided into sections sufficiently small to enable the instructors to give proper attention to the individual requirements of students, thereby insuring thorough and efficient work.

The faculty at present numbers 35, including members of the Experiment Station staff. Of these there are 12 professors, 4 assistant professors, 12 instructors, and 4 assistants, besides the Librarian, the President's Private Secretary, and one assistant in the Experiment Station who has no work of instruction. Four professors, two assistant professors, and two assistants divide their time between the instructional work of the College and the work of the Experiment Station. Two instructors are pursuing regular courses in the College as students and devote part of their time only to the work of instruction. In addition, student assistance is used in the laboratory work in science, in the critic work in English, and in the clerical work of the Registrar and of the Secretary of the College.

The work of the faculty is characterized by a spirit of unity and progress. The professors are all specialists in their respective lines, men and women whose interest extends beyond the mere consideration of salary to the important question of professional success. It is the ambition of each to accomplish all that is possible for the individual students under his charge, as well as to succeed in the field of research and of investigation.

POLICY.

In the development of the resources of the intermountain region there is an ever increasing demand for the skilled mechanic; the proficient engineer; the scientific farmer, stockman, dairyman, and horticulturist; the intelligent, broad minded accountant and business man; and the accomplished housewife. It is the policy of the Agricultural College of Utah, in accordance with the spirit of the law under which it is organized, to meet these demands of the people; to provide a liberal, thorough, and practical education. The two extremes in education, empiricism and the purely theoretical, are avoided, the practical being based upon, and united with, the thoroughly scientific. All the practical work, on the farm, in the orchards, vineyard, gardens, dairy, commercial rooms, kitchen, sewing rooms, different scientific laboratories, and carpenter, forge, and machine shops, is done in strict accordance with scientific principles. In addition to the practical work of the different courses, students are thoroughly trained in the related subjects of science, and in mathematics, history, English, and modern languages. While the importance of practical training is emphasized, the disciplinary value of education is kept constantly in view. It is recognized that the mind and eye and hand must together be trained in order to secure symmetrical development. The object is to inculcate habits of industry and thrift, of accuracy and reliability; and to foster all that makes for right living and good citizenship.

WHAT THE COLLEGE COMPRISES.

In considering the work and requirements of the institution, it is important that attention be called to the fact that the College comprises practically six different schools: The School of Agriculture, the School of Engineering, the School of Domestic Arts, the Commercial School, the Manual Training School, and the School in General Science; besides the Experiment Station which, while not providing for instructional work, is one of the most important departments of the institution.

The School of Agriculture includes the departments of rural engineering, agronomy, stock feeding, animal industry, dairy husbandry, horticulture, and veterinary science. The work is arranged especially for the education and scientific training of agriculturists. In addition to the subjects which characterize this school, students take the necessary fundamental work in chemistry, biology, botany, mathematics, and other subjects.

The School of Engineering includes mechanical engineering and civil engineering. The aim of the work in engineering is to provide the students such training as will qualify them to deal intelligently with engineering problems in general, and to prepare them for a professional career. The instruction in all engineering branches combines the theoretical with the practical, so that the students become familiar not only with the purely scientific phases of the work but with their application to modern practice. Besides the practical importance of the work, it has a high disciplinary value, being especially adapted to the development of originality of thought and action.

In the department of Mechanical Engineering, the purpose is to give instruction in designing and construction of machinery. The work includes courses in elements of mechanism, metallurgy of iron and steel, steam engineering, applied mechanics, dynamics of machines, power measurement and transmission, machine designing, and dynamo machinery. The Civil Engineering work is designed to afford training in the different classes of structures and public works which pertain to the profession of the civil engineer. The distinctive work includes hydraulics, irrigation, drawing and designs, elementary and advanced surveying, hydrographic surveying, roads and pavements, masonry structures, etc. Unusual opportunities are afforded for practical hydrographic and irrigation engineering work by the experiments on the Station farm, and the cooperation of the department with the Disvision of Hydrography of the United States Geological Survey and the United States Irrigation Investigations.

In the School of Domestic Arts two courses are given, one extending through two years and one extending through four years. The distinctive work includes thorough and practical courses in different kinds of cooking, in hand and machine sewing, in dressmaking, millinery, and fancy work, in laundering, in horticulture, and in dairying.

The Commercial School provides work in the various subjects usually given in commercial colleges. The purpose is to broaden the intelligence of accountants, and to prepare students for important work in business. In addition to the work in English, mathematics, physics, drawing, and history, the courses include bookkeeping, commercial geography, commercial calculations, commercial law, history of commerce, business customs, civics, economics, stenography, and typewriting.

There are two courses offered in the Manual Training School, one of two years in Domestic Arts, and one of three years in Mechanic Arts. Though of a more elementary nature, the work in the manual training course in domestic arts includes the most important subjects offered in economic science and sewing, the instruction being adapted more especially to those students who are able to remain in the College for one or two years only. The distinctive courses in mechanic arts include carpentry, forging, and machine work, students devoting four hours each day to shopwork. In all of the work of the department the principles of economy, neatness, and rigid accuracy are insisted upon.

The School of General Science embraces the broad field of general science, mathematics, language, history, and literature. In this school special opportunities are afforded for scientific investigation and research along the various lines of biology, botany, physics, chemistry, mineralogy, geology, and mathematics.

In addition to the work of these schools, it is necessary to maintain preparatory and sub-freshmen courses for the accommodation of those young men and women of mature years who are not prepared to enter the more advanced classes of the regular college courses.

AGRICULTURE.

During the first year and a half of the period covered by this report, the work in the department of Agriculture was done by Professor Foster, Professor Linfield, and Assistant Professor Merrill. When Professor Foster withdrew at the beginning of the present academic year, the courses which he had given in agronomy were assigned to Assistant Professor Merrill.

Professor Linfield, who has charge of the work in Dairy and Animal Husbandry, reports that during the last two years the instruction given in dairy husbandry includes courses in milk composition, milk testing, and bacteriology applied to dairy products; buttermaking; cheesemaking; organization, building, equipment, and management of dairies; and practical dairying. In animal industry courses are given in breeds of live stock, including the history and description of different breeds found on the farm, their origin, and development into the specialized animals of today, together with the effect upon them of climate and management; breeding of live stock, dealing with the laws of reproduction, heredity, reversion, cross breeding, etc: management of live stock, including a practical discussion of the principles of breeding, with a full description of the methods of caring for the different classes of live stock from birth to final disposition; and judging of live stock, a course aiming to put into practice the knowledge gained in the class room. The work is given partly by lectures and partly by afternoon practice in stock handling and judging, an equal amount of time being devoted to each.

While the department is well equipped for the work in dairying, in order to provide for the necessary instruction and experiments to meet the requirements of the live stock industries of the State, an appropriation for increasing the equipment for this part of the agricultural work of the College should be made.

Respecting the work and requirements of this department, Professor Linfield, in his report to the President, says:

"The best specimens of pure bred live stock present perhaps the highest attainment of the practical agriculturist. The examination of these high types of the breeder's art makes the student acquainted with the best in animal form, and leads him to inquire with zest how this form has been produced; while, by the comparisons brought out in the study of the different animals, the teacher can point the way to further improvement.

"In every college visited during the past summer, the study of the best specimens of live stock through contact with the living animal was recognized as an essential part of the agricultural course. Nearly all the colleges have valuable specimens of pure bred stock, and many animals are especially fitted during the summer and fall for the student work in practical handling and judging. On this point the Utah Agricultural College is almost totally deficient.

"For the work with students, and in the live stock interests of the State, the College should be provided with about four representative breeds of pure bred stock, two of the beef type and two of the dairy type. In addition to these, it is necessary to keep a regular dairy herd for the work in dairying. . . . . .

"In Utah, there is probably more money invested in sheep than in any other class of live stock. Moreover, the sheep industry is growing both in Utah and all over the United States. There are many questions pressing for investigation. For this work there should be three or four breeds of pure bred sheep, as well as common sheep for feeding and other experimental work. There should also be three or four breeds of pure bred hogs as well as grades for experimental feeding. . . . . .

"In selecting the pure bred animals, the best only should be purchased. It would be better to reduce the number than to obtain animals of secondary quality. The estimated cost of the pure bred stock is $3,800.

"The handling of animals is just as much, and just as necessary, laboratory work as the handling of chemicals. We all recognize that the student of chemistry needs a comfortable place for his work. Why should not the student of animal industry be provided with comfortable places for his work? Students do not take with eagerness to standing out on a bleak winter's day examining the beauties of nature, nor yet of live stock, even if they have an enthusiastic teacher. This fact is being recognized by agricultural colleges, and large, well lighted, well equipped, and comfortable rooms are provided where the live stock may be studied.

"For the work in animal industry in the College, our present buildings are inadequate and unsuitable. The cattle are housed in the basement of the old barn which, opening to the north, affords practically no sunlight in the stable. Past experience has shown that it is not the place to keep valuable stock. It is moreover needed for other purposes. The present hog pens are situated on the north side of the barn, and are thus shaded at all times. The site is low and damp, and thus the young hogs do not thrive.

"We have at present no building for sheep, and but very limited space to store farm implements. One of the greatest needs, therefore, is for new live stock buildings. These buildings on the college farm should be constructed so as to provide the most healthful surroundings for the stock. The best type of stable is easy to keep clean and easy to ventilate, and amply provided with light. It should also be substantially built. The stables should illustrate principles of construction which every farmer could and should apply, yet their finish and substantiality should be such that the practical man can look up to them as ideal. The eastern states are keeping these facts in mind. Wisconsin has $18,000 invested in a barn for dairy cows, and $10,000 in a horse barn, while the sheep and hog buildings are also large and well constructed. Iowa, Minnesota and Michigan have nearly as much invested. Kansas is building a new barn for dairy cows at a cost of $10,000, and Colorado expects to spend as much or more the coming year for additions to their live stock buildings.

"It is proposed that we use the old barn for a horse stable, for implement storage, and for seed bins and an experimental granary; and that new buildings be constructed about 250 feet east of the old barn, on a dry, well drained plat of ground, for the cattle, sheep, and hogs. The remodeling of the old barn will cost about $700.

"The new cattle barn, constructed of the best material, with cement floor and iron fittings, containing all the accommodations required for the work referred to, including the stock judging room, will cost $8,000. The first cost of this building may seem high, but being durably constructed will last for a great many years; and in the good accomplished in the stock and dairy industry, will return to the State many times the original cost.

"For the work with sheep, a building costing $1,200 will be required; while the new building for the hogs, neat, substantial, and convenient, with cement floor, will cost about $1,000.

"The construction of these buildings on a new site will necessitate the fencing of new yards convenient to the buildings. It is proposed to use woven wire, which is neater and more substantial than lumber and will not interfere with a view of the stock from the drives. This work will require $300.

"In addition to these, a cement floor should be placed in the College dairy at a cost of about $250. The present floor was laid seven years ago, and is now rotting in several places, and should be renewed. Cement floors are used in many practical dairies, and either a cement or a tyle floor is used in all dairy schools throughout the East.

"Finally, in thinking over the plans of these buildings and the funds asked for, it must be considered that these are state buildings and therefore should be built substantially, and with the best possible fittings. In the next place, these buildings are the laboratories for our college work in agriculture, and there must be room for our students and farm visitors to get around with ease and comfort, to see the stock. These buildings, moreover, must provide the conveniences for careful and accurate experimental work. Lastly, we want the students and visitors when they visit us to see the best, something better than they have at home: something that will at once command their attention as worth a visit to see, and that will be worthy of their study. In all of these things it is very necessary that the College should lead and not follow."

Assistant Professor Merrill has charge of rural engineering, agronomy and veterinary science. The following is taken from his report to the President:

"Rural engineering is taught during the spring term. The subject embraces farm buildings and fences; location, plans and construction; laying out and improving farms; drainage and irrigation; road making; the selection, arrangement and management of a farm, with reference to special systems to be pursued.

"The course in agronomy treats of soils and their preparation for crops; the farmyard manure and commercial fertilizers; the uses, adaptation, cultivation, and harvesting of farm crops.

"The aim of the course in veterinary science has been to teach young men how to locate and detect the more common ailments of domestic animals, and to give instruction in the means of preventing and curing them. I am pleased to be able to report an increased interest in the work in veterinary science, due largely no doubt to the free clinics which are held each week, when a large number of animals are treated to give the students experience in diagnosing the common ailments. For this work we have a model hospital and an equipment second to none in the West. Each year the Experiment Station dairy herd is tested for tuberculosis with tuberculin furnished by the Bureau of Animal Industry, and the students are required to assist in the work that they may become familiar with the methods employed.

"Although it has now been more than ten years since the College was organized, the Department of Agriculture has never had a permanent class room, and as yet no laboratory or laboratory equipment has been provided. The demonstration of many simple truths in the work with soils is practically impossible without laboratory facilities. The instruction in soil physics is especially important in Utah, bearing as it does upon questions of irrigation, conservation of soil moisture, evaporation, etc. Without a laboratory and equipment in this most important branch of our work, instruction is very difficult and unsatisfactory, requiring that the student shall take for granted statements of facts, whereas he should work out for himself the facts and principles upon which the theory of the class room is based.

"There is also great need for an agricultural museum where specimens of grasses, cereals, minerals, soils, plant substances and products of rural industry may be kept for use in illustrating the work of the class room. The estimate for fitting up and equipping a laboratory for the study of problems in soil physics and agricultural mechanics is $250; for fitting up and equipping a room for an agricultural museum, $300. . . . . .

"I also urge the importance of a liberal appropriation for that division of the library in which this department is interested. Important additions to agricultural literature are being constantly made, and these should be placed in the library."

In view of the great agricultural interests of the State, and the importance of the work of the agricultural school of the College, the above estimates of the requirements for additional equipment during the next two years are not excessive. One of the leading objects in view in establishing agricultural colleges in the different states of the Union was to improve the condition of the farming classes, by providing facilities for work in scientific agriculture and related subjects. As Professor C. F. Curtis, of the Iowa Agricultural College, says, "the agricultural work demands extensive laboratories fully equipped with material and facilities for making the practical application of scientific principles."

While the facilities are ample for the work in dairying and veterinary science, the College is practically without any equipment for the work of the other departments of agriculture. To provide adequately for this work there should be permanent provision made for a class room for each of the departments; a laboratory for work in soil physics and agricultural mechanics, provided with all the necessary equipment; an agricultural museum, with the different kinds of material used in illustrating the subjects taught; model farm buildings with the different kinds of animals required; and all other incidental material necessary to thorough, successful, modern work in the various lines of scientific agriculture. Indeed, this school should be one of the best equipped in the institution.

The experience of land grant colleges shows that agricultural instruction is more expensive than the work along any other line. The least expensive instruction is in mathematics, history, and languages. The work in the various sciences, requiring laboratory facilities, is more expensive; the engineering courses, provided with the necessary shops, machinery, and laboratories are still more expensive; while the most expensive work in these institutions is in the different departments of agriculture.

In a letter recently received from Professor W. A. Henry, of the College of Agriculture of the University of Wisconsin, is this statement:

"Last year we had 381 bona fide agricultural students, and this year the number will reach 400* or more despite the fact that we have raised the fees from non-residents to practically a prohibitory rate. . . . I ascribe the increased interest shown, as measured by the large attendance, to the size of our agricultural faculty and to our equipment for agricultural instruction. It will require about twenty-five professors and instructors the coming winter for the strictly agricultural branches, including farm blacksmithing and farm carpentry. At a low valuation, our inventory of personal property exceeds $50,000. We use three educational buildings, and over $40,000 worth of farm buildings for exclusive agricultural purposes. And yet our equipment is but meager and our teaching force less than it should be. . . . . . We have one large live stock judging room built in connection with our stock barn, which room cost several thousand dollars. . . . . . .

"Our soil-physics laboratory covers four floors of half the Horticulture-Physics building in addition to the large greenhouses. Our Dairy building, which cost originally $30,000, is being enlarged at an expense of about $18,000."

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*In December there were 428 students registered in the agricultural courses.

It is true that, according to the register of students, the attendance upon the agricultural courses has not been so large as in some other departments; but this is no doubt due largely if not entirely to the meager facilities for the work in agriculture. We cannot expect students in this department until we are prepared with the necessary facilities to give them the very best instruction possible in the particular lines in which they have interest. The claim that the practical young men of the farm do not believe in agricultural education is disproved by the experience of the best agricultural colleges of the country. To quote again from Professor Curtis:

"There is no longer any difficulty in securing students, provided proper facilities for instruction are offered by the colleges. There is not a college in the United States that has anything approaching the proper equipment and means of instruction, but what is overrun with students; and the more these facilities are strengthened, the greater will be the demand. Where proper provision has been made, it is no longer a question of getting students, but only of providing funds to furnish adequate instruction."

If the department of agriculture in the College be equipped for successful work, and the courses so arranged as to meet the agricultural demands of the State, and adjusted to the requirements of those who desire to pursue them, there will no longer be any difficulty in securing students. Instead of there being from 40 to 60 students pursuing the various courses in agriculture, there should be, and if the necessary facilities are provided, no doubt will be, from 300 to 500. It is hardly possible to overestimate the good that will come to the State from the scientific training of these students in the subjects affecting the leading industry of the people.

STATE VETERINARIAN.

Professor Merrill strongly urges the importance of the establishment of a separate chair in veterinary science. He says:

"After giving the matter reflection, I am strongly convinced of the importance of the establishment of a separate chair in veterinary science. Even if the number of students seeking instruction in that branch should be no greater than heretofore, the field of inquiry presented by the subject is so great, and the need of a state veterinarian so urgent, that a specialist might be fully employed by combining this work. Since his researches and work would be mostly of a local character, it would seem desirable for the compensation of the incumbent to be paid in a large part by the state. Such an arrangement has been made by a number of western institutions and has been found very satisfactory in promoting the live stock interests. With such a division, I would be relieved of much routine and correspondence work and enabled to give more time to the strengthening of my part of the other agricultural work."

FARMERS' INSTITUTE.

The legislature of 1896 placed the responsibility of conducting farmer's institutes in the various counties of the State upon the Agricultural College. In accordance with this law, during the past two years meetings have been held in the counties of Beaver, Box Elder, Cache, Summit, Uintah, Utah, Wasatch, and Washington. Each year a general institute has been held: in 1898-99, at Brigham City, and in 1899-1900, at Ogden. There has been a general growth in the interest the people have taken in institute work, and the requests for meetings have been beyond the limits of the funds available to pay the expenses of the speakers. From reports of many of the leading farmers of the State, and the large correspondence relating to agricultural work in its various phases, it is evident that the institute work has been a great benefit to the people in the counties in which meetings have been held, and that a continuation of the work on a more systematic plan will result in the accomplishment of greater good.

In accordance with the requirements of the law, a

5000-edition of the Farmers' Institute Annual was issued each year: No. 3, a volume of 123 pages, in 1898-99; and No. 4, containing 124 pages, in 1899-1900. In these annuals are published addresses given during the year, containing a great deal of valuable information on agricultural topics, peculiar to Utah conditions. These annuals are sent free to all residents of the State whose names are on the Experiment Station lists, and to such others as apply.

CHEMISTRY AND MINERALOGY.

Professor Widtsoe reports that during the last two years classes were taught in general, analytical, agricultural, and organic chemistry, and in mineralogy. The work in geology has also been done by the Professor of Chemistry. One course in geology was given during each of the two years.

The present equipment and rooms for the Department of Chemistry are very unsatisfactory. Most of the work done in chemistry is of an advanced character, and requires good laboratory facilities. Notwithstanding this, for all of the work of the several courses there is but one laboratory room, which is also used for recitation, and one very small store room. The Station chemical laboratory is correspondingly inadequate.

The courses in chemistry form the basis for much of the work that is done in the college courses, notably in agriculture, general science, and domestic arts. It is important that adequate provisions be made for successful work in this important science. In order to provide at all satisfactorily for the different courses in chemistry, there should be (1) a large general laboratory, equipped for elementary work, including qualitative analysis and elementary chemistry; (2) an additional laboratory for organic chemistry,for agricultural chemistry and for analytical quantative analysis; or, preferably, (2) and 3) two additional laboratories, one for quantitative analysis, and one for organic synthetical work; (4) a small private laboratory for the use of the professor; (5) a lecture room, in connection with which should be provided (6) a small museum and (7) a large store room.

For the work in assaying and mineralogy, it is important that two special rooms be provided.

For successful work in the chemical department of the Station there should be (1) a large laboratory for general analytical work; (2) a small weighing room; (3) a nitrogen room; (4) a small sampling and grinding room that can be used by both Station and College; (5) a dark room for beet and all sugar analyses. In connection with the Station work, it is also important that there be a large store room for chemical apparatus and specimens. There are on hand at present something over 10,000 specimens and samples which should be carefully preserved for future use. There should also be a room for the samples received from year to year. Some important apparatus of the Station has been seriously damaged through inadequate store room being provided.

The department is very much in need of additional facilities, particularly for the analytical work. The following is taken from the report of Professor Widtsoe to the President:

"The rooms occupied by the laboratories were built for the Mechanic Arts Department, and are not suited for work in Chemistry. When the department was moved into these quarters it was understood that our occupation of them would be temporary. We have not, therefore, desired to make permanent improvements that would have to be abandoned in a short time. The department does not possess a class room; our recitation work is done in the crowded laboratory. In the same laboratory are the work table and cases for instruction in Mineralogy and Geology. The small storeroom is overcrowded, and much time is wasted in hunting for bottles and boxes, that cannot, for want of room, be placed in a systematic order. No other department of the College is working under such unfavorable conditions.

"I petition, in behalf of the instructors and students of the Department of Chemistry, that a strong immediate effort be made to improve our conditions. If nothing better can be done, I would ask that the quarters formerly occupied by this department in the main College building be assigned to it again. The gas, water and sewer connections are all in place there, so that the cost of removal would be a minimum. There we should have room enough for our work for several years to come. A better plan of course would be to provide a building for the department, costing $15,000 or $20,000, where modern chemistry could be taught successfully. The department can not, however, wait in its present quarters for several years, without a serious hindrance to its efficiency and growth. A change should be made soon.

"For the instructional work there is a great need of illustrative material. Four or five hundred suitable bottles should be bought, to contain specimens of the substances discussed in the class room; and cases should be provided for the protection and exhibition of these specimens. Such a class room museum is one of the first essentials of successful instruction in natural science. The department possesses very little apparatus for the demonstration of the laws of chemistry before the classes. Such apparatus should be provided at the earliest convenience. The cost would be about $150.

"Organic Chemistry is prescribed for students in the General Science and Domestic Arts courses. Here again I am compelled to state that the College does not possess the necessary apparatus for instruction in this important branch of chemistry. The prescribed laboratory work has been done, for five years past, with apparatus belonging to the Station laboratory. With the growth of the Station chemical department this has been made impossible. The necessary apparatus and chemicals for work in organic chemistry should be provided.

"The same statement holds true for the subject of quantative analysis, which is required of General Science students. The College does not own one platinum crucible; does not own a balance that can be used; yet the professor of chemistry is required to give instruction in quantative analysis.

"The spirit of modern education is to develop originality. Hence independent research is encouraged. Chemistry lends itself with exceptional ease to new lines of investigation. It would be comparatively easy to encourage students in the later college years to take up independent researches, had we only a modest provision for such work. Or, did we have the equipment, we might encourage students to come back for post graduate work, thus making possible a deeper and more thorough knowledge of some subjects that can be acquired in the General Science course. The small outlay for necessary equipment would benefit the College in the students that could be attracted, in the greater respect we would receive from scholars, and in many other ways.

"The department, with the exception of a class room museum, and proper rooms for recitation and laboratory purposes, is excellently well equipped for work in Elementary Chemistry. It is our advanced work that needs special attention. To place the department in a position to do really good work requires an outlay for equipment of not more than $550 or $600.

"The division of Mineralogy has received no appropriation for several years. It should be placed in a better condition by the addition of apparatus and illustrative materials. There is an incessant demand for instruction in the practice of assaying; every year many applicants are turned away. It may be possible to institute a short special course to meet this demand. We are also asked, almost daily throughout the year, to assay specimens of rocks and ores from new prospects, for the gold and silver and other valuable metals which they contain. If the Board feels that this demand must be met, some provision for increased facilities for assaying should be made.

"The division of Geology has received appropriations to the extent of $25 during the last six years. Before 1894, to the writer's certain knowledge, a set of plaster casts of early forms of animal life was the only accession to the department. Geology is likely to remain a lifeless subject, even with the most enthusiastic teacher, under such conditions. Geology is a subject of wide importance and deserves more recognition in the College than it has received."

The Library is in need of a number of valuable books required in the work of chemistry, mineralogy, and geology.

ANIMAL BIOLOGY.

After the withdrawal of Dr. Brewer from the College in 1898, the work in Animal Biology was assigned to Professor W. S. Langton, who divided his time between biology and mathematics. At the beginning of the present academic year, on the establishment of professorships, Professor Langton was assigned to the Department of Mathematics, and Dr. E. G. Gowans was elected to the professorship in Animal Biology.

The work of this department includes courses in general biology, anatomy and physiology, zoology, and bacteriology. During the past two years there have been classes in bacteriology, anatomy and physiology, and zoology. Biological subjects are prescribed in the sophomore and junior years of the College courses in agriculture, general science, domestic arts, and commerce, the course in bacteriology being prescribed in the junior year of the Agricultural and General Science courses.

In order to provide for more effective work in this department, some modifications in the arrangement of the courses will be necessary. This will involve a small expense for additional equipment, and will require an additional room for laboratory work.

Professor Gowans, in his report to the President, says:

"Some important changes should be made in the biological work of the College. As it is, students who have not had the opportunity of pursuing courses in elementary science as given in the secondary schools are expected to undertake college work in zoology and other biological subjects. Having had no practice in laboratory methods of study, they are poorly fitted to undertake the more advanced work; and the work that is undertaken must of necessity be made more elementary than is desirable. Again, the vast majority of our students do not remain in attendance long enough to complete the college courses and unless they reach the sophomore year, leave without having had any work in biological science. It would therefore seem desirable to make such changes as will bring to as large a number of our students as possible the benefit of some training in the elementary natural science work.

"The arrangement which I think desirable, with such modification as may be necessary, is about as follows: Preparatory to the college work, students should receive one year's instruction in biology, five hours per week, exclusive of the work in botany. Half of the year should be devoted to Human Anatomy, Physiology, and Hygiene, and the other half to Elementary Zoology. The work in physiology at such a time in the student's career, I consider more vital than English. With such an introduction the college work could be begun with the hope of accomplishing good results. In the prescribed courses, agriculture and domestic arts, there should be required General Biology, quite an extended course in Zoology, vertebrate and invertebrate, and a half year's work in Bacteriology. The above courses in zoology, after considering the general principles of the science, should include a detailed consideration of the higher invertebrate forms and the vertebrates.

"In the elective work of the College, particularly in the General Science course, it should be possible for a student to elect a major in biology such that, when the work is completed he will be prepared to accept a position as a teacher of biology, biologist of an experiment station, or pursue the study of medicine, dentistry, or veterinary medicine to advantage. Such a major should include work in histology, embryology, bacteriology, mammalian anatomy, advanced physiology and neurology.

"It will be seen that the above plan would provide some training in science for students of high school grade, would not permit students to remain two, three, or four years in the College without getting some instruction concerning their bodies and how to take care of them, and would provide an adequate preparation for the college courses in biology. The college courses themselves would be susceptible of a much better arrangement, and on the whole the Department of Animal Biology would begin to fulfill its proper function, which in an agricultural college is a most important one.

"Under such an arrangement, provision would need to be made for the accommodation of the larger classes in laboratory work in sub-freshman science. The present biological laboratory will accommodate twenty students, which is as many as can be directed to advantage by one person. It has to do service not only for physiology, zoology, etc., but for bacteriology as well. It is manifestly unwise to permit students who are not following bacteriologically clean method to do laboratory work in the same room where work in bacteriology is done. A separate room, not necessarily large, should be provided for the exclusive use of students of bacteriology.

"The laboratory is well supplied with apparatus for the elementary work in physiology, zoology, and histology. The equipment in bacteriology is more suitable for the use of the practical bacteriologist than for that of a number of students. The needs of the department will therefore be determined by the extent to which its courses are made available to the students. On the presumption that not more than the required work indicated above will be offered during the next two years, an expenditure of from $400 to $500 will be sufficient for apparatus and supplies."

HORTICULTURE, BOTANY, AND ENTOMOLOGY.

Very thorough work is being done in the courses of this department. The work of the laboratory and class room is illustrated bv the orchards, forest plantation, gardens, and greenhouses. During the past two years there have been classes in physiological botany, systematic botany, elementary and advanced horticulture, floriculture and entomology.

The department is fairly well equipped for the courses offered. But little has been added during the past two years, between $300 and $400 having been expended for materials required in the three different lines of work.

Professor Close estimates that to provide the necessary addition for the work of the next two years, about $800 will be required, as follows: For horticulture, to purchase good models of standard varieties of the different kinds of fruits needed to illustrate different types and varieties of fruits in the class work, $100; to purchase books on horticultural topics, $50; for the work in botany, to procure compound microscopes, mounted herbarium specimens, models showing the different organs of a flower, and general equipment, $535; for entomology, to procure models representing insects, and to provide general equipment, $105, and to purchase reference books, $50.

The expense of improving and caring for the campus during the next two years, including the cost of extending the lawn south and east of the Mechanic Arts building, grading and seeding the bank along the north line of the campus and east of the Dormitory, leveling and seeding additional lawn for the athletic field east of the main building, providing the necessary extension of water pipes for irrigation purposes, and providing trees and shrubbery and conservatory equipment,—is estimated by Professor Close at $1,400.

PHYSICS.

This department is in charge of Professor Clarence Snow. In his report to the President, he says:

"When I came to the College two years ago, the physics courses had been handed about from one instructor to another, to all of whom it had been a subject of secondary interest, and as a consequence physics had not received the consideration to which its importance in a technical college entitles it. Moreover, the course had been taught, chiefly through lack of facilities, almost entirely by descriptive methods. Appreciating the importance of the laboratory method in science work, arrangements were made as far as possible for laboratory work in the different courses. With a small appropriation from the Board of Trustees, and the asistance in the shops of members of the classes, I managed to provide sufficient pieces of the necessary apparatus for the more elementary work. Graudally the equipment has been increased until, during the last year, as many experiments were performed as could be profitably attempted in the time allowed for the work.

"The elementary work has been very much improve during the present year by the modification of the college courses, which permitted the extension of the course in elementary physics through the entire freshman year. The extension of this course requires some additional apparatus.

"Two years ago the junior course in physics, embracing the subjects of heat, electricity and magnetism, on account of the rearrangement of the general courses, was not given. Last year the course was given with as much laboratory work as was possible with the apparatus at hand.

"During the present year some very valuable additions have been made to our equipment, and we are doing correspondingly better work. The laboratory and class room of the department does very well for the elementary work. The advanced work, however, cannot be done in the present laboratory on account of the great vibration of the building. We are very much in need of a good room on the ground floor where all the finer electrical and magnetic measurements can be made."

Professor Snow reports that the greatest difficulties encountered in the work in physics result from the lack of proper preparation in mathematics, and urges the importance of extending the requirements in mathematics for entrance to the freshman work in physics to include more extended work in algebra and geometry. He also recommends the establishment of advanced courses in electrical and magnetic measurements and in the theory of light, to be offered as electives in the General Science and other courses.

For additional apparatus and other equipment, about $500 will be required. A number of additional reference books should be procured for the work in physics. There should also be a class room provided, in addition to the laboratories required.

MATHEMATICS AND ASTRONOMY.

Besides the subjects taught in the Preparatory and Sub-Freshman courses, the courses in mathematics given during the last two years include solid geometry, advanced algebra, plane and spherical trigonometry, analytic geometry, differential and integral calculus. There are at present twelve classes in the different courses. Elective work is also now offered in the more advanced subjects of calculus, geometry, etc. On account of the technical work in the different courses of the College, in engineering and science, requiring an application of the principles of pure mathematics, the opportunities are very favorable for the development of a strong departmen. Professor Langton reports an increased interest in the work of the more advanced courses.

The most important needs of the department include illustrative material for the work in the Preparatory and Sub-Freshman courses, a set of Shroeder projection models for Descriptive Geometry, and between $300 and $400 worth of books. There are practically no mathematical books in the College library; and while a much larger amount would be required to provide fully for the work that should be done in connection with the advanced courses, this amount at least should be available for immediate use.

CIVIL ENGINEERING.

The general plan of the work of the department of Civil Engineering has been indicated in the statement respecting the several schools of the College. The work is being prosecuted with increased interest and with marked success. The department is well supplied with the various instruments required in the field work.

Professor Swendsen reports that the greatest need of the department is for additional rooms and laboratory equipment for work in hydraulics and mechanics. At present there is no room available for storing the costly instruments of the department and for the engineering museum. One small room in the Main Building is used for the Professor's office, the store room, the museum, and the class room. The work in drawing and designs is done in one of the small museum rooms on the top floor. To meet the requirements of the department, there should be, in addition to a good class room, a large room in which could be placed the various instruments and other material required in the class and field work of the department; an office for the Professor; a draughting room; and a laboratory room for work in hydraulics and mechanics. Respecting the importance of the equipment of a laboratory, Professor Swendsen says:

"While the theoretical work has been strengthened by the addition of a course in hydraulic motors, as yet we have done nothing in the way of laboratory work which generally forms such an important part of these courses. The great demand for properly trained hydraulic engineers in our State impels me to urge as strongly as I can the importance of the establishment as soon as possible of a properly equipped hydraulic laboratory. It is my purpose to make a thorough training in this course one of the important features of the department. The work in applied mechanics and masonry structures would be very much more complete and satisfactory if testing machines were available for testing some of the construction material."

In addition to the rooms required for this department, the necessary equipment for the next two years would cost about $600. Additional books are also required for the work of the engineering courses.

MANUAL TRAINING.

The Manual Training course in Mechanic Arts extends through three years. It includes carpentry, forging, and machine work. During the first year students in carpentry have rudimentary exercises in sawing, planing, mortising, dove tailing, and the application of these in the construction of simple articles of furniture; practice in making panels, doors, and sashes, and plain cabinet work, followed by the completion of a Standard carpenter's tool chest; sharpening and adjusting carpenter's tools, and saw filing. During the second year the work embraces practice in all branches of ordinary wood turning and other machine work in wood; the application of the principles of the first year's work to plain house building, including the inside finishing, casings, mantels, etc. The work of the third year includes practice in modern methods of stair building; special work in cabinet making, with instruction and practice in surface finishing; and, as the final exercise of the course, some elaborate piece of furniture, the work being original in selection and design, subject to the approval of the Director.

The exercises of the first year in forging include the preliminary work in drawing, bending, twisting, shaping, iron welding, and the making of iron tools; practice in steel and iron welds, and general work in steel tool forging and dressing; chisels, punches, reamers, hammers, etc.; general vise work, including chipping, filing, hand polishing, and hand fitting of various sample exercises. During the second year practice is given in horse shoeing, spring making and tempering; making and repairing agricultural implements, plow points, cultivator teeth and frames, etc.; practice in wagon and carriage construction.

The machine work consists of various exercises in straight and taper turning, drilling, planing, and milling, accompanied by instruction in the care and use of machinery; boring and chucking in the lathe, thread cutting, polishing, and other exercises required in making shaft couplings, tap wrenches, etc.; making taps, spiral drills, fluted reamers, mandrils, with practice in finishing tempered articles, and practice in actual machine construction.

Students taking this course devote four hours a day to shopwork, the remainder of the time being spent in the regular class work of other departments. In all the work of this department, the imporance of the disciplinary value of the training is emphasized. All exercises are made to drawings, absolute accuracy being insisted upon. Thorough training is given in English, mathematics, history, etc. Aside from the purely disciplinary value of the work, the purpose is to provide the students with a good secondary education, and to make skilled tradesmen in carpentry, forging, and machine work.

The great demand throughout Utah and adjoining States for the students of this department at high salaries as mechanics, and the encouragement received from leading manufacturers and mechanics, attest the success of the department. The value of manual training in the interest of the industrial classes is so generally recognized that a discussion of its importance as a department of the Agricultural College is unnecessary.

There has been a gradual increase in the attendance since the establishment of the department, and the prospects for the future are very favorable.

Respecting the requirements of the department for the next two years, Director Jenson says:

"The art of moulding and casting in iron is so intimately associated with machine work, and so absolutely essential in machine construction, that this work has been very seriously defective in the past. The work in pattern making has also been without the basis of its application and consequently but little appreciated by the students. The art of moulding and casting in itself is an important industry in our state, and the department has already been called upon by the requirements of this industry to supply men who have had training qualifying them for this work. Thus the installation of a small foundry at this time would not only render the equipment already supplied much more efficient, but would also add to our course in Manual Training another very important branch of work.

"The construction and equipment of a foundry sufficiently large to meet the requirements of the department in connection with the present building would cost about $3,000.

"Electric welding has during recent years become so important in manufacturing, that a positive demand for a small electric furnace is felt by every manual training school throughout the country. An electric furnace is rapidly becoming a part of the equipment of every manual training school. To provide such a furnace would cost $250.

"For the work in horse shoeing, it will be necessary to provide a shoeing stall at a cost of about $200. Additional machinery required to meet the demands of the larger classes applying for machine work will cost about $800.

"The appropriation by the last legislature for the maintenance of the Manual Training School was for the period from January 1, 1899, to January 1, 1901. That manual training may be placed upon the same financial basis as other departments of the College, there should be an appropriation for maintenance from January 1, 1901, to July 1, 1903. By exercising rigid economy, and by utilizing the income from department sales and from fees, the cost of maintenance will be proportionately the same as during the last biennial period, amounting to $3,750."

DOMESTIC ARTS.

Professor Cotey reports an increased interest in the work of the Domestic Arts Department. The addition of the Manual Training Course in Domestic Arts made it necessary to engage an assistant in household science throughout the year instead of during the winter term only. During part of the year it was necessary also to engage an assistant for a few hours each day in sewing, dressmaking, and millinery.

The different courses have been given as outlined in the catalogue. An important feature of the work in household science has been the preparation and serving of lunches. Regarding this work Professor Cotey says:

"Lunches have been served by members of the cooking classes as usual during both winters; also to the Board of Trustees and their guests at their meetings at the College. In the winter of 1899 dinner was served to members of the Legislature and visiting friends from Salt Lake to the number of 350. The money received from the lunches served daily and from the sale of cooked food and fruit prepared by classes has been turned over to the Secretary and his receipt retained. The total amount received in 1898-99 was $201.50; in 1899-1900, $228.17. This money, together with students' fees, pays for all raw food materials used by regular, special, and winter course students, and a part, but not all, of that used by manual training classes. The Board of Trustees kindly appropriated sufficient to make up that deficiency; also to provide such incidental articles and supplies as were required.

"A large range, additional tables, and other articles of equipment have been provided to meet the growing demands of the department. About $400 will be required during the next two years in replacing worn cooking utensils; in purchasing other material required in household science, including cases for the display of the fruit put up by the classes, and for preserving the material used in illustrating the composition of foods; for the collection of food materials; and for the purchase of reference books.

"The work in sewing is much more satisfactory since the room was enlarged. The new wardrobes provided have enabled students to keep their work in a tidy condition. Two new sewing machines and an electric iron have increased the efficiency of the instruction. A showcase is greatly needed in which to keep samples of the work done in the class. Embroidery and lace become injured by handling when on exhibition. The samples of the best work kept in sight of the class would be a stimulus to less skillful workers. . . . . A collection of textiles would increase the interest of the students in their work, and would be a factor in their general education. More reference books are needed in the library for the use of students in studying textiles. The estimated cost is about $200.

"The Manual Training course has been more popular and more satisfactory in every way than was anticipated when it was established. The aim is to give such thorough training in household science and sewing as to enable the students to do creditable work in those lines—work that would command good market price if it was necessary for them to earn their living, or such as would make them efficient housekeepers. At the same time students are laying the foundation for a good education.

"Comparatively few complete the course, but the influence of the training in system, accuracy, and neatness, must be felt for good in every home to which these students return. The effort will be made to increase its usefulness in the future."

COMMERCE.

The work of the Commercial Department during the last two years has been highly satisfactory. The different subjects have been taught as outlined in the catalogue. Thoroughness and efficiency characterize the work throughout. Three hundred and seventy-eight dollars was used for typewriters and other material required in the work; and the seating capacity of the bookkeeping rooms was increased.

The most pressing need of the department is for additional room. More room should be provided for the work in bookkeeping, and an additional class room for work in stenography and other subjects is required. In addition, Professor Faris reports that for typewriters and other material, $800 will be required during the next two years.

ENGLISH LANGUAGE AND LITERATURE.

All of the students of the College take English through the two years of the Preparatory and Sub-Freshman courses, through the freshman and sophomore years of all the college courses, during the first term of the junior year in the Agricultural, General Science, and Domestic Arts courses, during the first and third terms of the senior year in the Commercial course, and during the third term of the senior year in the courses in General Science and Domestic Arts.

During the first term of the present year there were nineteen sections, in charge of the Professor of English and four instructors. Very thorough and satisfactory work is being done throughout the department. Of the nature and plan of the work, Professor MacEwan, in his report to the President, says:

"Strong emphasis is laid upon the work in English in the Agricultural College, and this for several reasons: English is considered fundamental to all other studies; very few students reach the study of any other language; the graduate's usefulness, his education, his higher enjoyment in active life is gauged by his command of his vernacular. His success as a leader depends very largely on his power of expression, with voice, with pen, or in public print.

"During the two years of the preparatory course, therefore, two hours a day are given to English work,—reading, spelling, grammar, composition. During the freshman year, one hour a day is given to the study of English, (a) the structure of the sentence, with daily and special weekly exercises in constructing sentences from material found in a classic masterpiece; (b) the study of elementary rhetoric and composition, with frequent exercises in construction as well as analytic work ranging from the single sentence through single paragraphs, paragraph groups, and complete essays; (c) the careful, critical reading of select literary masterpieces, exhibiting the essential qualities of the various forms of prose and poetic composition, with reproductions, written reports, and other exercises based on this study. During the sophomore year, English occupies a term on an average of three hours a week, with descriptive narrative, and expository discourse, and two terms with argumentative discourse, the first and third terms being principally devoted to practice in analytic outlining, and constructive practice, the second term being devoted largely to a study of principles. From the lowest preparatory class through the sophomore year, at least one composition or theme is required each week, and some of the time daily written exercises are required. This entails great labor on the instructor, but it seems the only way to reach desired results. One term of the junior year is given to the study of the history of English literature, including textbooks, lectures, and illustrative readings, and one term of the senior year is occupied with the study of the works of a single great writer—Tennyson, Browning, Wordsworth. In the study of literature, stress is laid on the written reports, and biographical and critical essays read before the class.

"The work in the English department is distributed as follows: All of the work of the college classes is done by myself, except the revising of freshman written work, which is largely done by senior student critics. Of this work, however, I examine carefully a part of each set of exercises, and look over hastily all exercises. The work in reading and the study of the English classics—preparatory department—is done by Misses Moench and Baker.

"The grammar and composition work of the preparatory and sub-freshman courses is done by Messrs. Caine and Hill. This work is very burdensome, requiring in addition to the four hours a day in the class room, almost as much time in revising and critcising written work. It is hoped that with the more careful organization of the work, recently affected, better results will be attained."

MODERN LANGUAGES.

There is a growing demand in the College for work in modern languages. At present provision is made for two years' work in German only. A number of the advanced students applied this year for a course in French, but it was impracticable to provide for it. The interest taken in French is shown by the fact that some of the students arranged for private instruction in this language. There is a demand for the use of French in the advanced work in engineering, mathematics, and in other sciences. Arrangements should be made at once for courses in French, extending through three years.

HISTORY AND CIVICS.

Until the beginning of the present academic year, a course in United States History, extending through two terms of the Sub-Freshman course, and a course in English History, extending through one term of the Freshman year, were the only courses given in history. At the beginning of this year the courses were changed so that a course is now given in American History extending through one year of the Sub-Freshman course, and the course in English History extends through the Freshman year. There are at present six sections in American and English History, and one section in civil government. Professor Engle reports that $300 for books of reference and for maps and charts will meet the requirements of the department during the next two years.

MILITARY SCIENCE AND TACTICS.

During the past two years the work in this department has been in charge of one of the advanced students of the College, and has been conducted in accordance with the regulations of the War Department respecting military drill in the land grant colleges. The work has not been entirely satisfactory, mostly for want of proper facilities. The inclement weather during the fall and early spring, and the rigorous winters, render it impracticable to use the drill grounds except during the early fall and late spring. Efforts have been made to drill in the corridors of the basement floor of the Main Building, but the results have not been satisfactory. There is not sufficient room to execute the commands in accordance with the drill regulations and to maintain proper discipline; besides the confusion interferes seriously with the work of classes which are in session during the drill hour.

The Government officer who inspected the work last year strongly urges in his report the importance of there being an armory provided for the military work. The act of Congress in accordance with which the College is organized prescribes military science and tactics as part of the required work of the institution. Under present conditions, the work of this department can never be satisfactory, and unless some improvement is made we shall be severely censured by Government officers.

PHYSICAL EDUCATION.

The importance of physical education in all institutions of learning is recognized throughout the educational world. No institution is regarded complete without ample provision for the proper symmetrical physical development of its students. It is not enough that provision be made for desultory physical exercise, or that students devote a certain length of time each day to particular kinds of manual labor. To produce the desired results, the growing student should receive regular scientific physical training under the direction of a specialist in this line of work,—preferably a doctor of medicine whose attention is given particularly to the preservation of the health of the students.

Except the lighter physical culture work for women, practically no provision is made in the Agricultural College of Utah for physical training. The room known as the gymnasium is on the top floor (the attic) of the north wing of the Main Building. This room is entirely unsuitable for the work. At the time the building was finished, it was not intended that this room should be used, if at all, for this purpose, and it is not sufficiently strong to stand the strain of the various exercises in gymnasium and physical culture work. It has been for some years condemned as unsafe, and the Trustees have recently found it necessary to issue an order restricting the use of the room, even for light physical culture work, to one side where the danger is not so great.

It is important that measures be adopted without unnecessary delay by which to provide a suitable gymnasium for the proper physical training of the students. The best plan would be to provide a new building for the armory and gymnasium, using it for both the departments of Military Science and Tactics and of Physical Education. Such a building can be constructed for from $25,000 to $30,000.

Badly, however, as this building is needed there are other even more pressing demands upon the institution for additional room, and it would seem necessary for the present to make other arrangements. By completing the front of the Main Building, as discussed in another part of this report, temporary provisions, which will be fairly satisfacotry, can be made for the work in military science and physical education.

LIBRARY.

According to the report of the Librarian, Mrs. Goodwin, there have been accessioned during the last two years 1920 books, as follows: History, 178; literature, 358; art, 55; religion, 50; philosophy,31; useful arts, 369; science, 262; philology, 20; sociology, 542; and general works, 63. During this period about $1,500 has been expended for the purchase and binding of books. The reading has been mainly along the lines of the different courses taught in the College, with the usual reading in fiction, travel, and biography. In addition to the purchases, the accessions have been mostly by gifts from the Government at the request of the Librarian, to continue and complete sets already begun. Some few additional gifts have also been made, the most valuable being Dante's Inferno, illustrated by Gustave Dore, presented by Professor J. F. Engle, of the College.

The reading room adjoining the library is provided with reading slopes around the walls on which are placed 240 newspapers and magazines, as follows: Agricultural papers, 95; county newspapers, 50; daily newspapers, 5; literary magazines, 35; scientific and technical magazines, 45; agricultural magazines, 10.

The library is in need of large accessions to meet the requirements of the different courses in the College. Without exception, all the reports of the professors urge the importance of apporpriations for additional books. The library is a potent factor in the development of an institution of higher learning. As President Dwight of Yale says, "Every section of the institution, whether larger or smaller, must suffer injury if the library is arrested in its development. Every professor and directly or indirectly every student is helped by its steady growth. This is more truly the fact at the present time than ever before."

In one of his annual reports, President Andrews, of Brown University, speaking of the needs of his institution, calls for ten gifts of $100,000 each, and the second of these he would apply to the library, although it already had book funds amounting to $60,000. President Carter of Williams College reports with approval that the annual expenditure upon the library is one-tenth the entire income of the institution.

Notwithstanding the necessity of providing additional books, the greatest and most pressing need of the library of the College is for additional and suitable room. The importance of this will be appreciated when it is known that the entire library,comprising upward of 8,000 bound volumes and over 10,000 pamphlets is crowded into the entrance corridor of the north wing, a room 18 by 28 feet, 14 feet high. Moreover, this same room is used for all catalogue and other work of the Librarian. At least a third of the space is practically valueless because inaccessible; the shelves being so high that they can be reached only with great difficulty by the use of a long ladder, and the space being too small to allow the construction of galleries as a means of using the upper shelves. This room is too small to accommodate more than one small section of the library, besides being in every way unsuitable. It is poorly lighted and practically without any means of ventilation. The reading room adjoining the stack room on the north is well lighted and very pleasant, though too small to accommodate all the students.

The library has been moved four times during the last ten years. It was placed in its present quarters because they are the most suitable in the building, on account of the necessity for a comparatively large and well lighted reading room. But the growth of the library, and the increasing library requirements of the different departments of the College, render imperative the demand for more suitable accommodations.

To quote from a recent report by the President of the University of Minnesota, "the importance of a library, containing the latest results of scientific investigation and of historical research cannot be overrated nor over stated. It is the heart of the university. But it is hardly less important that the library should be accessible and capable of being comfortably used. It should be in a suitable building. Within its walls should be the laboratories of those departments which, like history, English literature, political science, and psychology, require reference to many books, even in the investigation of a single subject. The library building in the modern conception is not merely a store room for books to be handed out by one to the seeker after knowledge; it is on the contrary at once the store house of material and the laboratory in which the material is profitably used."

That the library of the College may be of the greatest value, it should be provided with rooms sufficiently large to permit the arrangement of the books in alcoves, large, well lighted and ventilated, suitable for use by advanced students and members of the faculty in their research work. To care properly for the business of the library, a catalogue room and office are needed; and the general reading room should be sufficiently large to accommodate at least 300 readers, and to contain reading slopes for current literature, and cases for dictionaries, encyclopedias, and general works of reference that should always be within easy access of the readers.

The plans for the main building of the College provide for the library in the front central part. By the completion of this part of the building, the library could be permanently provided for. The rooms now used by the library would then be available for other purposes, as explained in another part of this report.

MUSEUM.

For a number of years practically nothing has been done in arranging and classifying the material in the museum, or in making collections of material so much needed, especially in the departments of agriculture and science.

A well equipped museum is of inestimable value in providing material for illustrative purposes in connection with this work, particularly in a scientific technical institution such as the Agricultural College.

Regarding the condition and requirements of the museum, the following is taken from the report of the Curator, Professor Gowans:

"The collections in the Museum comprise material for the study of geology, mineralogy, paleontology, and zoology. The material for use in the class room in geology is very valuable, but the collection is on the whole meagre, considering the fact that we are located in the very midst of a wealth of geological material that might, at comparatively little expense, be added to our present collection, which would then assume some scientific importance. What has been said of geology can be said with equal force of mineralogy. The collection in zoology is fuller in the line of marine invertebrates than any other. In the line of entomology we have nothing. In ichthyology we have nothing, with the exception of one specimen from the Pacific. The collection of birds includes 44 species, and that of mamals, 25 species. The collection is particularly incomplete as regards Utah species.

Since the beginning of the year, considerable work has been done in arranging the material and cases now in the Museum. This work is not yet complete, nor can it be carried on further until more cases are provided to receive the material now awaiting disposition. Every speciman properly labeled, classified and disposed, adds to the value of the Museum for teaching purposes, and one source from which we get much material is the large number of friends and patrons of the College. In order to provide accommodations for such material as comes from this source, more cases will be needed in addition to those needed at present. In order to do this and make somewhat worthy collections of Utah animals, birds, fishes, reptiles, and insects, $1,000 to $1,500 could be very profitably expended during the next biennial period."

EXPERIMET STATION.

The Experiment Station of the Agricultural College of Utah is a potent factor in the development of the agricultural interests of the State. Although providing for no work of instruction, the investigations of the Station are of great value in the work of the other departments of the College, particularly in the various lines of agriculture and the natural sciences. The following is the report of Director Widtsoe to the President, respecting the work of the past two years, and the plans and requirements of the next biennium:

"The 10th and 11th annual reports of the Experiment Station will show in detail the work accomplished during the past two years. Briefly summarized, the work has been as follows:

"The Agricultural Department made tests of different varieties of grain and other crops; it tested the behavior of imported plants under Utah conditions, and began experiments on irrigation, chiefly with reference to the sugar beet.

"The Horticultural Department carried on the study of different varieties of fruit grown in the Station orchard; it tested varieties of different vegetables, and conducted experiments, both on the Station grounds, and with Utah farmers, on the best methods of handling fruit orchards, with especial regard to combatting the codling moth; the effect of thinning on the yield of peaches, and the influence of ringing grape vines on the yield and quality of the grapes produced.

"The Dairy Department continued its studies on milk production, the proper care of milch cows, and the most profitable disposition of dairy by-products.

"The Chemical Department continued its studies on Utah fodders. Wheat, oats, barley and the field pea were the main subjects of study during the past two years.

"The Poultry Department continued its studies on egg production, and the care of the flock. The results of these experiments have general application and have made the Station known throughout the larger part of the civilized world.

"The Irrigation Engineer made some valuable observations on the water supply of Utah, the loss from seepage in ordinary canals, and the duty of water as ap-[illegible] Utah farms.

"The only new investigation of importance that was begun is the study of the alkali soils of Utah, pursued in co-operation with the U. S. Dept. of Agriculture.

"Besides, several of the lines of work that have been under investigation for a number of years were carried on to completion. The most notable is the steer feeding experiments to determine the value of lucern cut at various stages of growth. A series of experiments on pig feeding and the production of pork, that have extended over a period of seven years has likewise been finished. The Dairy Department has also published results that have been based on observations extending over hree to seven years.

"The following bulletins published during the past wo years contain results obtained during that period, lso considerable data obtained in previous years: 58, hemical Life History of Lucerne, Part II; 59, Utah gar Beets in 1898; 60, Poultry Experiments; 61, Allfa or Lucern; 62, Tree Planting in Utah; 63, Sugar ets in Sanpete and Sevier Counties; 64, Horticultural bjects; 65, Plant Diseases and Insect Pests; 66, Corn periments; 67, Poultry Experiments; 68, Experiments th Dairy Cows; 69, The Golden Vine Field Pea; 70, Experiments in Pork Production.

"The 10th and 11th annual reports have also been published.

"The practical applications that may be made of the results contained in the above bulletins are of high importance to this and adjoining States.

"By an intelligent use of the information furnished, there can be no doubt that the cost of making the investigations will be repaid a thousand times over, by the increased profits that will come to the farmers in the more rational methods of handling their crops and animals. The work of the Station is quietly revolutionizing the methods of Utah agriculture.

FUTURE WORK.

"The Station plans, as far as its resources will allow, to encourage by its investigations, all the agricultural industries of the State.

"The Agricultural Department will carry on a series of experiments on the maintenance of the fertility of Utah soils, chiefly by means of the rotation of crops. It will test new plants for their drouth resisting qualities and general adaptability to Utah conditions. It will also test varieties of grains and other crops already introduced. An important part of the work of this department will be experiments on the culture and handling of the lucern and sugar beet crops.

"The work of the Horticultural Department for some time will be the encouragement of the fruit industry by experiments demonstrating the value of proper spraying, pruning, culture, etc. Varieties of fruit are being tested in the Station orchard for the yield and quality of fruit. Co-operative experiments with fruit growers in various parts of the State will be a valuable feature of the work of this department.

"The Department of Animal Industry will test Utah fodders and dairy and sugar factory by-products, for their value when fed to different classes of animals. It proposes also to make elaborate experiments on the possibilities and improvement of the sheep industry of the State. The main work of this department will be, how ever, to attempt to improve the live stock of the State by an infusion of better blood and a more careful obedience to the established laws of heredity. This work, if followed systematically will result in great advantage to Utah farmers.

"The Division of Poultry keeping will continue its important work. The practice of poultry keeping has not been reduced to a science, but Mr. Dryden, who is in charge of the work, is laying a foundation on which a rational method of the industry will be built.

"The Department of Chemistry proposes to give careful study to the soil conditions of the State, keeping in mind their cultural relations. Alkali lands and their treatment will also be studied as time permits, together with analyses of the irrigation waters of the State, so that the use of alkaline waters on good soils can be avoided. The composition of all crops grown on the farm, and the determination of their digestibility will, as heretofore, be a strong feature of the work of this department.

"The Department of Irrigation Engineering will supervise the measurements and distribution of water in the irrigation experiments, and will carry on, besides, studies on water supply, proper method of conducting, dividing and applying water.

"All the preceding problems cannot, however, be attacked with the same vigor, for, with the funds at our disposal, very little could be accomplished with each. Our results would be incomplete, and our efforts largely wasted. An individual cannot succeed in many things, no more can an institution with limited means. To gain the confidence of the people, and the respect of the scientific critics, we must produce results in our work that are accurate, deep going and thorough, that can be applied successfully in actual farm practice. Such results cannot be obtained by a rapid experiment, in which one man has an interest only, but by the united efforts of the whole Station Staff, each man taking for his share that part of the investigation which falls within his special study. Such work extended over several seasons must of necessity give results that will stand severe tests, and that will be handed down as classics in the field to which they belong. The Utah Station wishes to do work of which the State will be proud.

"No subject is of more immediate or greater future importance to the people of Utah and surrounding States than the art of irrigation. No subject of equal importance has so poor a foundation, due to the fact that scientific agriculture has been developed in countries with abundant rainfall. No State can have greater interest in irrigation than arid Utah, in which modern irrigation on the western continent was founded.

"It is proposed, therefore, that the central subject of investigation for the Utah Station be the attempt to improve the art of irrigation, and to place it on a scientific basis. By exhaustive experiments the value of water in plant growth; its duty, its effect on plants and soils, and the feeding value of plants grown under different methods of irrigation, will be determined. Field crops, garden vegetables, fruits and animals, will be considered in their relation to irrigation, together with the best methods for the division and handling of water. In this way the energies of every member of the Station staff will be made to bear on the problem, and as a consequence, we are certain of good results. This plan has been endorsed by the Department of Agriculture at Washington, and by leading men within the State of Utah.

THE NEEDS OF THE STATION.

"For the future success of the Station it is imperative that the State come to its aid. With the present organization, nearly four-fifths of the Station funds are used for the payment of salaries or wages. The remaining one-fifth is entirely insufficient to procure the necessary apparatus; to pay the general expenses of maintenance, and to publish our experimental results. To do our future work well, under present conditions we must reduce our working force, and consequently abolish some line of valuable work. When it is recalled that most States give thousands to their Stations annually, it cannot be improper to make the suggestion that the State of Utah, which is larger in area, and complex in its agricultural conditions, should help its Station.

"The expense of publishing the results of the Station work amount to $1,500 to $2,000 annually. If the State would assume the burden of publications, it would be a relief to the Station that would manifest itself in the superior quality of the work done.

"Emphasis must also be laid upon the condition of our buildings and equipment. First, it may be said that our work in the breeding and feeding of animals, will hereafter be useless unless the barn and the stables which have been in continuous use for ten years, be repaired and put into a proper sanitary condition. For the past seven years the dairy herd has been afflicted with tuberculosis, or consumption; with several epidemics of contagious abortion, and occasional cases of black leg. The experiments of the dairy department have, as a consequence, been unable ot make the certain progress that might have been expected. Measures, almost heroic, have been applied at various times for the eradication or control of the diseases; the condition of the stables is such that a complete renovation or new buildings, only, will have the desired effect. All other experiments with animals that spend much of their time in the dark, foul smelling and wet stables, will be affected to a degree sufficient to throw a doubt on their reliability. The wonder is that the results already obtained have been won in such a place. The hog pens that are thrown against the barn, in the lowest place, are doing much to increase the unsanitary conditions. A new hog pen should be built on the higher ground to the east of the barn.

"The State should meet this crying need of the Station, and build a suitable cattle barn, together with a small sheep barn and hog house. The old barn could be renovated and used for the horses, and for the storage of feeds.

"The work in irrigation will hardly be possible unless the Station can procure a few acres of suitable land for the experiments. Attempts have been made at various times in the past to carry on irrigation work on the College farm, but owing to the complete unsuitability of the place for experiments, our success has been small. Time and money have been wasted in doing with indifferent success what is impossible to do well on the gravelly, shallow bench land that represents nearly all the farm. Besides, the soils of the State are various in their nature and the results obtained on the College farm do not entitle us to advise with certainty farmers who live in a different part of the State. To meet these conditions the College should acquire, for the experimental work of the Station, 15 or 20 acres of land representing more correctly the average farms of the State. In addition, to furnish the necessary check work on all our field experiments, and also to enable us to study the peculiar needs of the soils of other portions of the State, we should possess a summer vegetation house with the usual accessories. Such a house forms part of the equipment of all Stations that pretend to deal at all largely with the conditions of plant productions.

"In the same connection it may be stated that our water stock does not furnish us with the water necessary for the farm, and we have been compelled to buy water each season. The State should make an appropriation for water, sufficient to supply us throughout the season, without endangering our experiments. It has often occurred in the past, that, at a most critical time in the growth of experimental crops, we have not had sufficient water and, as a consequence, our results have been vitiated.

"Further, if the Station shall do any work on the improvement of the live stock of the State, it must be in possession of some pure bred animals. It is impossible for the Station to acquire such animals without the aid of the State.

"The needs just discussed must be met in a proper manner, or the quality of the work done at the Station cannot be maintained or increased. I hope that a liberal Legislature will appreciate our condition and make the necessary appropriations.

"The desired improvements and additions are as follows:

"Cattle barn, $8,000; sheep barn, $1,200; hog pens $1,000; stock yards, $300; renovation of horse stables, $700; land, $1,000; vegetation house with equipment, $1,500; water stock, $250; pure bred stock, $3,800; printing, two years, $3,000; total, $20,750.

"When the Station shall receive the necessary State aid, it will be in a first class condition, and can be expected to do work that will compare favorably with any Station in America.

"The future of the Station is very encouraging. The lines of work are such as will yield valuable results; the Station staff is composed of men enthusiastic over the advancement of agriculture."

The above estimate of the requirements of the Station for the next two years is very conservative, considering the importance of the additional buildings and other equipment desired in the work, not only of the Station but also of the Department of Agriculture. After very careful consideration, the plans of Director Widtsoe for the work of the Station have been approved, and it is urged that the Legislature make the necessary appropriations for the improvements required in the successful prosecution of this work.

The Department at Washington is directing special attention to irrigation work in the arid region, and has already manifested a disposition to assist the Experiment Station of Utah by special appropriations. If the State will provide the necessary land and other facilities required in beginning this work on a proper basis, it will no doubt result in bringing to the State for irrigation investigations thousands of dollars from the general Government.

It is also important that the Legislature make an appropriation for printing the results of the work of the Experiment Station; but should it be found impracticable to do this, and at the same time to allow the amounts required for the buildings and other equipment of the Station, and of other departments of the institution, it would be better to postpone the assistance given the Station for printing until the next session of the Legislature. In furnishing the buildings and other permanent improvements it is important that enough be allowed to meet the requirements for which they are provided; thus avoiding the necessity of expensive and wasteful changes in the future.

RESOURCES.

The College receives $40,000 a year from the Federal Government: $15,000 under an act of Congress approved March 2, 1887, for the maintenance of the Experiment Station, "to aid in acquiring and diffusing among the people . . . useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science;" $25,000 under an act of Congress approved August 2, 1890, to be applied "to instruction in agriculture, the mechanic arts, the English language, and various branches of mathematical, physical, and economic science, with special reference to their application to the industries of life, and the facilities for such instruction."

Upon the admission of Utah to Statehood, the amount of public lands granted to the Agricultural College was fixed at 200,000 acres. From the sale of this land there is to be established a perpetual fund, the interest of which shall be available for the purposes of the institution.

The act of 1890, as interpreted by the Department at Washington, forbids the use of any of the twenty-five thousand dollars for the construction, equipment, heating and lighting of buildings, or for the payment of the salaries of administrative officers or of instructors in subjects not specified in the act. Not to exceed five per cent of the Experiment Station fund can be used for the maintenance of the buildings required in the Station work.

In addition to the income from the government and form the land grant fund, the College is dependent upon the State Legislature for such appropriations as are needed to meet the requirements of the several departments in accordance with the acts of Congress, and to provide for the further development of the institution consistent with the educational and industrial demands of the State.

REQUIREMENTS.

In the consideration of the requirements of the Agricultural College of Utah from the State Legislature, it is important to keep in mind:

First. That while $40,000 a year is received from the Federal Government, $25,000 only can be used in meeting the expenses in connection with the educational work of the institution, and that none of this money can in any way be used for the construction, equipment, heating, and lighting of buildings, or for the payment of the salaries of administrative officers or of instructors in subjects not specified in the act of Congress; that the $15,000 is expended in accordance with the provisions of Congress for the work of the Experiment Station only,and can in no way, directly or indirectly, be used in meeting the expenses of instruction.

Second. That the College comprises, in addition to the Experiment Station, six diffierent schools: the School of Agriculture, the School of Engineering, the School of Domestic Arts, the Commercial School, the Manual Training School, and the School in General Science, besides having to provide preparatory and sub-freshman courses; that the work of agricultural and industrial colleges is the most expensive kind of educational work. Many of the land grant colleges throughout the country spend more annually for the work in their agricultural school, alone, than the Agricultural College of Utah has for the maintenance of the entire institution.

Third. That the work of the Agricultural College of Utah represents the great agricultural, industrial, and commercial interests of the State, and that the institution yields an hundred fold in return for every dollar expended in its development.

Fourth. That the Federal Government has dealt generously with the State of Utah in the gift of public lands and in the amount annually appropriated to its agricultural, scientific, and technical institution of higher learning; and that these gifts are contingent upon the provisions by the State for adequate buildings and for meeting the expense of general maintenance required in the growth of the institution throughout all its departments, in accordance with the acts of Congress under which the College is organized.

Fifth. That notwithstanding the liberality of the State in the past in its appropriations to the Agricultural College, the institution has now reached a point in its development where its further growth will be arrested unless provision be made for additional buildings and equipment.

BUILDINGS.

To provide for the proper growth and use of the library, and for successful work in agriculture, in civil engineering, in chemistry and mineralogy, in commerce, in military science and tactics, and in physical education, the demand for additional room is imperative.

By the completion of the front part of the main building and a rearrangement of some of the work, all of the departments could for some time be provided for. The Main building when completed consists practically of three buildings, comprising the central or main building, and two wings. The central part would provide amply for all administrative work, for the library and reading rooms, the assembly or lecture hall, the rooms for class work in English language and literature, modern languages, history and civics, mathematics and astronomy, and drawing. The south wing is admirably adapted to the work in domestic arts, civil engineering, and the Commercial School. By removing from the north wing the administrative offices, the library, and the departments of mathematics and astronomy, civil engineering, and English language and literature, there would be room in that part of the building for all the agricultural and science work. There are many advantages in this arrangement. Very much of the apparatus and museum material could be used alike by several departments were the laboratories all concentrated in one part of the building. More suitable rooms would also be provided for the work in drawing and in engineering designs; and the rooms on the top floor in the east part of the Main Building now used for this work, would be available for museum purposes. At a comparatively moderate expense, provision could also be made for the gymnasium and military work. The removal of the chemical laboratories from the Mechanic Arts Building would give additional room for the work in mechanic arts, and would obviate the necessity of constructing a new addition for the foundry and shoeing stalls. To complete and furnish this building will cost 50,000

The cost of providing the necessary farm buildings for the work in animal industry, as discussed in another part of this report, required by the students in agriculture and for the work of the Experiment Station, will be........................11,200

To put cement floor in dairy rooms........... 250

The vegetation house to be used by the Experiment Station in connection with the work in irrigation and in agronomy, will cost............... 1,000

EQUIPMENT.

Equipment of vegetation house.............. 500

For additional land and water right, to be used in connection with irrigation and other work of the Station 1,250

For pure bred stock—cattle, sheep and hogs.. 3,800

For the equipment of the agricultural laboratory, museum, and class rooms 1,000

EXPENSE OF MAINTENANCE AND GENERAL EQUIPMENT.

Insurance for the two years on buildings and equipment 2,100

For general maintenance, including salaries of administrative officers and of instructors not paid from the Government Fund; janitorial services; fuel, electric light, and power; maintenance of the Manual Training School, with necessary machinery and other equipment and supplies; laboratory equipment and supplies; purchase of books and maintenance of library; printing and advertising; painting and repairs required during the two years in the proper care of the property of the institution, including new floors in the basement of the Main Building formerly used for shop work; the painting of the picket fence along the west boundary of the campus and of the wood work of the dormitory, etc.; the care and improvement of the campus, and other general and incidental expenses 44,000

The above estimate includes such amounts only as are necessary and indispensable in providing even moderately for the work of the College. Much larger sums could be used to great advantage. A new Gymnasium and Armory Building, furnished with suitable apparatus; a Science Building, provided with modern equipment for class and research work in the physical and natural sciences; and large, well equipped engineering laboratories, would add greatly to the value of the work of the institution. The financial condition of the State, however, and the needs of other institutions, have been kept in view in considering the demands of the Agricultural College of Utah for the next two years; and the requirements have been reduced to the lowest possible amount consistent with thorough and efficient work.

Respectfully submitted,
W. J. KERR, President.

January 5, 1901.

THE BIENNIAL

REPORT OF THE SECRETARY

Of the Agricultural College of Utah for the Years 1899, 1900.

Logan, Utah, January 5th, 1901.

To the Board of Trustees of the Agricultural College of
Utah.

Ladies and Gentlemen:—The Secretary respectfully submits his report of the receipts and expenditures of the College during the biennial period from January 1st, 1899, to December 31st, 1900, with an inventory of the College property and a list of all officials and their salaries.

DETAILED ACCOUNT OF THE RECEIPTS AND EXPENDITURES OF THE AGRICULTURAL COLLEGE OF UTAH, DURING THE TWO YEARS ENDING DEC. 31, 1900.

GOVERNMENT COLLEGE APPROPRIATION.

From January 1, 1899, to June 30, 1899.

RECEIPTS.

Balance of Fund received from the United States Government remaining on hand Dec. 31, 1898, as per last report	$14,281.22

EXPENDITURES.

Agriculture.			
Salaries	$1,392.47		
Text and reference books	7.35	$ 1,399.82	
Mechanic Arts.			
Salaries	2,000.85		
Apparatus and Machinery	34.28		
Stock and Material.	36.89	2,072.02	
English Language.			
Salaries	3,139.02		
Text and Reference books	5.75	3,144.77	
Mathematical Science.			
Salaries	1,470.45		
Text and Reference books	6.75		
Apparatus and Machinery	58.60	1,535.80	
Natural or Physical Science.			
Salaries	1,715.00		
Text and Reference books	2.25		
Apparatus and Machinery	128.23		
Stock and material.	183.24	2,028.72	
Economic Science.			
Salaries	3,628.33		
Text and Reference books	4.67	3,633.00	13.814.13
Balance remaining June 30, 1899..........			$ 467.09

From July 1, 1899, to June 30, 1900.

RECEIPTS.

Balance remaining June 30, 1899.	$ 467.09	
Received from Government Appropriation	25,000.00	$25,467.09

EXPENDITURES.

Agriculture.			
Salaries	2,491.66		
Apparatus and Machinery	61.88		
Stock and Material	2.41	2,555.95	
Mechanic Arts.			
Salaries	3,480.00	3,480.00	
English Language.			
Salaries	4,896.16	4,896.16	
Mathematical Science.			
Salaries	2,400.00		
Apparatus and Machinery	243.15	2,643.15	
Natural or Physical Science.			
Salaries	2,983.30		
Apparatus and Machinery	79.84		
Stock and Material	193.92	3,257.06	
Economic Science.			
Salaries	6,874.97		
Apparatus and Machinery	420.00	7,294.97	24,127.29
Balance remaining June 30, 1900			$ 1,339.80

From July 1st, 1900, to December 31, 1900.

RECEIPTS.

Balance remaining June 30, 1900	$ 1,339.80	
Received from Government Appropriation	25,000.00	$26,339.80

EXPENDITURES.

Agriculture.		
Salaries		$ 1,236.66
Mechanic Arts.		
Salaries	2,038.00	

Apparatus and Machinery	288.58		
Stock and Material.	30.32	2,356.90	
English Language.			
Salaries		2,678.99	
Mathematical Science.			
Salaries	1,988.65		
Apparatus and Machinery	152.13	2,140.78	
Natural and Physical Science.			
Salaries	2,069.15		
Apparatus and Machinery	117.99		
Stock and Material.	240.69	2,427.83	
Economic Science.			
Salaries		2,292.82	13,133.98
Balance remaining December 31, 1900....			$13,205.82

STATE FUNDS.

GENERAL MAINTENANCE.

From January 1, to June 30, 1899.

RECEIPTS.

Greenhouse sales	$ 50.10	
Library sales	4.88	
Sale of smoke stack from boiler house	25.00	
Sale of text books	785.00	
Entrance fees	322.50	
Cottage rent	64.00	
Mechanic arts department fees....	319.00	
Chemistry department fees	17.50	
Domestic arts department fees...	168.85	
For deficit appropriated by Legislature	1,305.00	
State appropriation—		
On general maintenance	4,529.17	
On manual training	500.00	$ 8,091.00

EXPENDITURES.

Overdraft Dec. 31, 1898, as per last report	$2,190.03		
Less clerical error	1.00	2,189.03	
Equipment and supplies		810.50	
Salaries		1,508.90	
Postage and stationery		155.05	
Repairs on building		1,281.37	
Buildings		333.44	
Steam heat apparatus and repairs		1,353.78	
Furniture and furnishings		7.40	
Improvements and care of grounds		426.42	
Incidental expense		351.08	
Janitor and student labor		892.58	
Water works and sewerage		30.16	
Telephone and telegraph		64.02	
Water		100.00	
Freight and express		155.28	
Printing and advertising		138.70	
Traveling expense		43.05	
Fuel		812.64	
Electric light		840.00	
Text books purchased		836.51	
Entrance fees returned		25.00	
Library		187.73	
Mechanic arts equipment		136.75	$12,679.39

Overdraft ....$ 4,588.39

(Due from State, $1,095.83, leaving net overdraft, $3,492.56.)

From July 1, 1899, to June 30, 1900.

RECEIPTS.

Freight refunded	$ 3.86
Old carpet sold	1.00
Greenhouse sales	119.75
Poles sold	3.45
Library sales	6.35

Text book sales	2,440.39	
Entrance fees	2,060.50	
Cottage rent	48.00	
Mechanic arts department receipts	485.25	
Chemistry department receipts	32.50	
Domestic arts department receipts	253.52	
State appropriation due last year	1,095.83	
State Appropriation--		
General maintenance	12,000.00	
Mechanic arts equipment	1,587.50	
Greenhouse	2,000.00	
Land	1,000.00	
Painting and repairs	1,500.00	
Manual training	1,300.71	
Winter course	1,985.00	
Library	600.25	
Dynamo	488.52	$29,012.38

EXPENDITURES.

Overdraft June 30, 1899	$4,588.39
Equipment and supplies	1,316.92
Salaries	2,834.79
Postage and stationery	197.41
Repairs on building	715.34
Greenhouse	2,000.00
Buildings	290.22
Steam heat	21.10
Interest and discount	6.90
Furniture and furnishings	77.30
Improvements on grounds	868.01
Incidental expense	148.95
Library	667.97
Janitor and student labor	1,367.45
Water works and sewerage	115.95
Telephone and telegraph	134.72
Water	280.10
Freight and express	195.33
Printing and advertising	522.85
Traveling expenses	283.95
Fuel	1,752.88
Electric light	1,080.00

Text books	1,726.48	
Manual training	1,408.48	
Winter course	1,985.00	
Land	1,000.00	
Equipment and building for mechanic arts department	1,854.55	
Fees returned	7.50	
Dynamo	488.52	27,937.06
Balance on hand		$ 1,075.32

There was also due from the State on—

Equipment of shops	$ 412.40	
Library	55.82	
Manual training	55.27	
Total		$ 523.49
Making the actual balance available		$ 1,598.81

From July 1st to December 31st, 1900.

RECEIPTS.

Amount on hand June 30	$1,075.32	
Greenhouse sales	30.50	
Text books	1,164.97	
Entrance fees	1,525.00	
Mechanic arts department	146.00	
Chemistry	35.00	
Repaid on coal	6.73	
From State appropriation—		
Equipment of shops	412.40	
Library	72.26	
Manual training	99.92	
General maintenance	5,083.25	$ 9,651.35

EXPENDITURES.

Equipment and supplies	580.06
Salaries	2,602.49
Postage and stationery	382.47
Repairs on buildings	899.35

Buildings	20.00	
Steam heat	59.19	
Furniture and furnishings	490.19	
Improvements on grounds	15.15	
Incidental expenses	233.14	
Library	306.79	
Janitor and student labor	756.61	
Water works and sewerage	62.75	
Telephone and telegraph	56.84	
Water	180.35	
Freight and express	93.07	
Printing and advertising	660.26	
Traveling expense	24.85	
Fuel	1,404.58	
Electric light	79.20	
Book store	1,570.89	
Manual training	1,056.08	
Winter course	963.33	$ 7,263.13

Amount overdrawn on treasurer $2,846.29

There is due from the State for November and December bills—

On general maintenance	$4,993.97	
On Library	297.10	
On manual training	1,008.73	
Winter course	963.33	$ 7,263.13

Making amount on hand when these amounts are received ....$ 4,417.04

FARMER'S INSTITUTE FUND.

From Jan. 1, 1899, to June 30, 1899.

RECEIPTS.

From advertisements in Farmers' Institute Annual	$ 41.00	
From State appropriation	715.75	$ 756..75

EXPENDITURES.

Due from State as per last report.		$715.75	
Clerical help	$160.00		
Traveling expenses	147.65		
Printing and mailing annual report	15.44	323.09	1,038.84
Overdraft			$ 282.09
(Due from State.)			

From July 1, 1899, to June 30, 1900.

RECEIPTS.

Advertisements in Institute Annual	$ 39.00	
From amount appropriated last year	616.09	
From annual appropriation	1,082.32	$ 1,737.41

EXPENDITURES.

Overdraft		$ 282.09	
For traveling equipment	$336.86		
For traveling expense	474.88		
Printing and mailing annual report	522.89		
Clerical help	228.98	1,563.61	1,845.70
Overdraft (due from State)			$ 108.29

From June 30, to December 31, 1900.

RECEIPTS.

Advertisements in Institute Annual	$ 70.00	
From State appropriation	305.98	$ 375.98

EXPENDITURES.

Overdraft June 30		$108.29	
Clerical help	$154.29		
Traveling expense	195.76		
Printing and mailing annual report	526.29	876.34	984.63
Overdrawn on treasurer (due from State)			$ 608.65

EXPERIMENT STATION FUND.

From January 1, 1899, to June 30, 1899.

RECEIPTS.

From government appropriation	$ 7,500.00	
From sale of products	1,812.74	$ 9,312.74

EXPENDITURES.

Deficit December 31, 1898, as per last report	2,218.17	
Salaries	3,214.94	
Labor	1,897.98	
Publications	328.80	
Postage and stationery	78.63	
Freight and express	40.95	
Heat, light and water	221.86	
Chemical supplies	116.83	
Seeds, plants and sundry supplies	561.24	
Feeding stuffs	958.15	
Library	12.46	
Tools, implements and machinery	172.66	
Furniture and fixtures	9.25	
Scientific apparatus	40.30	
Live stock	6.00	
Traveling expenses	172.85	
Contingent expenses	10.00	
Building and repairs	17.30	10,078.37
Balance overdrawn		$ 765.63

From July 1st, 1899, to June 30th, 1900.

RECEIPTS.

From government appropriation	$15,000.00	
From sales	3,168.96	18,168.96

EXPENDITURES.

Amount overdrawn July 1st, 1899	$ 765.63	
Salaries	6,565.64	
Labor	4,323.57	
Publications	1,327.60	
Postage and stationery	163.52	
Freight and express	250.60	
Heat, light and water	207.33	
Chemical supplies	599.98	
Seeds, plants and sundry supplies	470.53	
Fertilizers	49.50	
Feeding stuffs	962.66	
Library	81.82	
Tools, implements and machinery	329.70	
Furniture and fixtures	19.25	
Scientific apparatus	179.57	
Live stock	267.50	
Traveling expenses	133.95	
Contingent expenses	10.00	
Building and repairs	732.84	17,441.19
Balance remaining		$ 727.77

From July 1, 1900, to December 31, 1900.

RECEIPTS.

Balance remaining June 30, 1900	$ 727.77	
Received from government appropriation	7,500.00	
Received from sales	1,513.51	$ 9,741.28

EXPENDITURES.

Salaries	$4,238.14	
Labor	2,435.76	
Publications	907.59	
Postage and stationery	114.84	
Freight and express	151.24	
Heat, light and water	14.85	
Chemical supplies	107.15	
Seeds, plants and sundry supplies	603.29	
Fertilizers	50.00	
Feeding stuffs	304.51	
Library	4.14	
Tools, implements and machinery	59.78	
Furniture and fixtures	4.00	
Live stock	36.50	
Traveling expenses	61.45	
Building and repairs	103.96	9,197.20
Balance on hand Dec. 31, 1900		$ 544.08

INVENTORY.

BUILDINGS AND REAL ESTATE.

College building	$100,500.00
Steam heating plant	13,750.00
Water works	2,000.00
Four cottages	3,400.00
Barn	7,000.00
Experiment Station building	5,450.00
Farm house	4,000.00
Director's residence	2,750.00
Steam heating plant in station building	750.00
Boiler house	1,800.00
Propagating house and veterinary laboratory	1,500.00
110 acres of land	11,800.00
Fencing, sheds, etc.	1,525.00

Poultry house	600.00
Work shops	9,500.00
Sewerage system	1,350.00
Greenhouse	2,500.00
Total	$170,175.00

COLLEGE EQUIPMENT.

Agricultural department	$ 61.88
Band instruments	7.00
Biological department	1,825.41
Boiler house	224.90
Botanical department	410.48
Chemical department	445.14
Civil engineering department	1,067.93
Commercial department	1,289.65
Cooking department	841.37
Dairying	708.09
Dormitory	647.00
Electric light	26.25
Engineer's equipment	42.00
Entomology	155.85
Furniture and fixtures	7,569.90
General equipment	82.81
Geology	25.00
Greenhouse	12.50
Gymnasium	132.00
Laundry	159.35
Library	5,590.87
Mechanic arts building	401.50
Mineralogical	250.00
Museum	1,509.23
Music books	24.08
Mechanical engineering	315.00
Mechanic arts	7,561.62
Physical	1,185.89
Sewing	325.56
Shops	1,014.23
Veterinary	615.90
Total	$34,528.39

EXPERIMENT STATION EQUIPMENT.

Agricultural department	$1,843.37
Dairy department	1,384.49
Horticultural department	587.78
Chemical department	2,705.05
Irrigation engineering department	175.89
Poultry department	219.87
Furniture, fixtures and equipment	1,066.10
Total	$7,982.55

EXPERIMENT STATION—VALUE OF LIVE STOCK.

Agricultural department	$ 900.00
Animal husbandry department	1,520.00
Poultry department	300.00
Total	$2,720.00

FARMERS' INSTITUTE.

Vehicles, harness, etc	$275.00
Horses	175.00
Total	$450.00

RECAPITULATION.

Total value of buildings and real estate	$170,175.00	
Total value of general equipment	34,528.39	
Total value of general equipment of station	7,982.55	
Total value of live stock of station	2,720.00	
Total value of Farmer's Institute property	450.00	
Grand total		$215,855.94

LIST OF OFFICIALS AND THEIR SALARIES.

From January 1, 1899, to June 30, 1899.

J. M. Tanner, President	$1,458.35
John T. Caine, Jr., Grammar	641.65
James Dryden, Stenography	641.66
E. J. MacEwan, English	1,166.65
F. B. Linfield, Dairying	758.29
W. S. Langton, Biology and Mathematics	700.00
Mrs. Dalinda Cotey, Domestic Arts	641.65
Sarah E. Bowen, Dressmaking	466.65
Joseph Jensen, Mechanical-Engineering	955.58
Luther Foster, Director	1,041.66
L. A. Merrill, Assistant Agriculturist	475.00
E. W. Robinson, Geography and German	544.15
J. W. Faris, Commercial Department	700.00
J. E. Wilson, Secretary and Penmanship	525.00
U. P. Hedrick, Horticulturist	812.50
G. L. Swendsen, Civil Engineer	783.32
Clarence Snow, Mathematics and Physics	700.00
George Thomas, Chemistry and History	840.00
Ruth E. Moench, Elocution and Physical Culture	437.50
A. J. Hansen, Foreman in Carpentry	437.50
J. P. Griffin, Foreman in Forge Shop	630.00
John Stewart, Assistant Station Chemist	475.00
Phoebe Eliason, Assistant in Domestic Arts	18.00
Annie Beers, Assistant in Domestic Arts	117.00
John A. Crockett, Assistant in Dairying	280.00
Charles Batt, Engineer	395.00
J. C. Thomas, Assistant Station Chemist	200.00
Sara G. Goodwin, Librarian	437.50
G. W. Thatcher Jr.. Vocal Music	208.32
May Robinson, Assistant Stenographer	140.00
C. A. Jensen, Military Instructor	92.00

From July 1, 1899, to June 30, 1900.

J. M. Tanner, President	$2,800.00
John T. Caine, Jr., Grammar	1,183.32
James Dryden, Stenography	1,283.30
E. J. MacEwan, English	2,000.00

F. B. Linfield, Dairying	1,483.32
W. S. Langton, Biology	1,283.30
Mrs. Dalinda Cotey, Domestic Arts	1,183.32
Sarah E. Bowen, Dressmaking	800.01
Joseph Jensen, Mechanical Engineering	1,600.00
Luther Foster, Director	2,000.00
Lewis A. Merrill, Assistant Agriculturist	1,091.65
E. W. Robinson, Geography and German	1,033.32
John W. Faris, Commercial Department	1,200.00
Joseph E. Wilson, Secretary and Penmanship	708.31
U. P. Hedrick, Horticulturist	312.50
George L. Swendsen, Civil Engineer	1,400.00
Clarence Snow, Mathematics	1,300.00
George Thomas, Chemistry and History	1,400.00
Ruth E. Moench, Elocution and Physical Culture	800.00
A. J. Hansen, Foreman in Carpentry	800.00
J. P. Griffin, Foreman in Forge Shop	1,080.00
John Stewart, Assistant Station Chemist	900.00
William Peterson, Assistant Horticulturist	600.00
C. P. Close, Horticulturist	1,187.50
Annie Beers, Assistant in Domestic Arts	350.00
D. D. Hugh, Pedagogy	1,000.00
P. W. Maughan, Secretary and Penmanship	291.69
John A. Crockett, Assistant in Dairying	600.00
Charles Batt, Engineer	720.00
J. C. Thomas, Assistant Station Chemist	40.00
Sara G. Goodwin, Librarian	1,000.00
George W. Thatcher, Jr., Vocal Music	41.66
Joseph Morrell, Special Auditor	56.00
Amy E. Wilson, Assistant in Secretary's Office	141.68
Alexander Lewis, Vocal Music	208.30
Lydia Holmgren, Assistant Stenographer	260.00
Charles A. Jensen, Military Instructor	144.00
May Robinson, Assistant Stenographer	15.00
May Maughan, Assistant in Secretary's Office	33.32

From June 30, 1900, to December 31, 1900.

William J. Kerr, President	$1,500.00
E. J. MacEwan, English	1,000.00
F. B. Linfield, Dairying	812.50
John A. Widtsoe, Director	666.66
Luther Foster, Director	458.34

Joseph Jenson, Mechanical Engineering	799.98
John W. Faris, Commercial department	633.32
Dalinda Cotey, Domestic Arts	600.00
Clarence Snow, Physics	649.98
George L. Swendsen, Civil Engineer	733.30
George Thomas, History and Chemistry	233.34
C. P. Close, Horticulturist	812.50
E. G. Gowans, Animal Biology	466.68
John F. Engle, History and Civics	600.00
John T. Caine, Jr., Grammar	600.00
James Dryden, Stenography	712.48
W. S. Langton, Mathematics	649.98
Lewis A. Merrill, Assistant Agriculturist	608.35
E. W. Robinson, Geography and German	525.00
Sara G. Goodwin, Librarian	499.98
Ruth E. Moench, Elocution and Physical Culture	400.02
Sarah E. Bowen, Dressmaking	133.34
August J. Hansen, Foreman in Carpentry	400.02
Julien P. Griffin, Foreman in Forge Shop	540.00
William Peterson, Assistant Horticulturist	360.00
John Stewart, Assistant Station Chemist	500.00
C. A. Jensen, Assistant Chemist	240.00
Alexander Lewis, Vocal Music	41.66
P. W. Maughan, Secretary and Penmanship	524.99
S. B. Mitton, Vocal Music	83.32
Rhoda B. Cook, Dressmaking	288.00
H. W. Hill, Grammar	400.00
Rena Baker, Reading and Classics	360.00
Louise G. Richards, Drawing	280.00
B. P. Fleming, Assistant in Irrigation Department	135.00
Robert Stewart, Military Instructor	45.00
E. J. Norton, Assistant Stenographer	150.00
E. P. Pulley, Mechanical Drawing	88.00
B. K. Jones, Assistant Station Chemist	124.98
Lydia Holmgren, Assistant in Domestic Arts Department	140.00
Ella Maughan, Assistant in Secretary's Office	100.00
Joseph Morrell, Special Auditor	24.00
John A. Crockett, Assistant in Dairying	300.00
Charles Batt, Engineer	415.00

Respectfully submitted,
P. W. MAUGHAN, Secretary.

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